

Unit 3 – Outcome 2

Chapter 3

Key knowledge

This knowledge includes:

1. Reasons why organisations acquire data via websites, including 24-hour customer access, improved efficiencies through direct data entry by customers, improvements in effectiveness and access to global market economies
 - Explain the advantages to organisations of collecting data online
2. Reasons why individuals and organisations supply data via websites, including purchasing of goods and services, voting, social networking and exchanging information
 - Explain the advantages to individuals of providing data online
3. Techniques used by organisations to acquire data on websites and reasons for their choice
 - Explain the different techniques available to collect data including data acquisition software and backend tools.
4. Techniques used by organisations to protect the rights of individuals and organisations supplying data, including security protocols and stating policies regarding privacy, shipping and returns
 - Why is it important that data collected online is kept secure?
 - Explain the techniques listed.
5. Stages of the problem-solving methodology
 - Give an example of how a relational database could be used in the problem-solving process
6. Purposes and structure of an RDBMS
 - Explain what a RDBMS is and how it differs from a flat-file database
 - What are the advantages of using a RDBMS
 - Define the terms fields, records, tables and relationships
 - Give examples of a one-to-one, one-to-many and many-to-many relationship.
7. Naming conventions to support efficient use of an RDBMS
 - Why are naming conventions important in a RDBMS?
 - What items should be covered by naming conventions?

8. Data types, including text (string), number, date/time, Boolean (true/false)
 - Why is it important to select the appropriate data type for a particular field/
 - Give an example of each of the data types listed.
9. Data formats used for display, including fixed decimal places, various date formats, 12 hour/ 24 hour time, true/false, yes/no
 - What are the advantages of using the different data formats listed?
10. A methodology for creating an RDBMS structure: identifying tables and fields; normalising tables, defining data types and field sizes, identifying primary key and foreign key fields
 - Why is the planning of the fields and tables to be used an important stage in designing a RDBMS?
 - Define the terms primary key and foreign key.
11. Ways in which normalisation can ensure the integrity of data in an RDBMS
 - What is data normalisation and what is its purpose?
 - Explain the first three normal forms
12. Design tools for describing data types, and the value of entity relationship (ER) diagrams for representing the structure of an RDBMS
 - What is the purpose of an entity relationship diagram?
 - Describe the purpose of IPO charts, data structure tables and data structure diagrams.
13. Design tools for representing solutions
 - Describe the design tools that are best suited to representing the RDBMS layouts.
14. Functions and techniques within an RDBMS to efficiently and effectively manipulate and validate data
 - Give examples of manual and electronic validation techniques that could be used when creating a data entry screen for a RDBMS.
 - Give examples of manual and electronic validation techniques that could be used when others are entering data into an online database.
 - Explain the use of each of the following RDBMS software functions: creating tables, creating relationships, calculation fields.
15. Functions and techniques to retrieve required information through searching, sorting, filtering and querying data sets
 - Explain the use of each of the following RDBMS software functions: create, edit & use queries, macros, filtering, sorting.
16. Methods and techniques for testing that the solutions perform as intended.
 - Distinguish between formal and informal testing.
 - Which areas of a RDBMS would need to be tested?